

1

가 .

500 ml

25

가

가 13 (52%) (n=10)

(n=2) , (n=1) . 12 (92%)

, 1

12 (48%) 11 (92%)

1 . 2 12, 13

가

(1, 2).

(uterotonic drug) 2000 1 2002 7 500 ml

25

19-41 ( , 31

) . 25 11 , 9

(3, 4).

5

(uterine packing tampon-

(5-11). ade)

가 (12, 13). 5 F (Cook, Bloomington, IN, U.S.A.)

가 (Boston - Scientific, Galway, Ireland) 5F 3 F

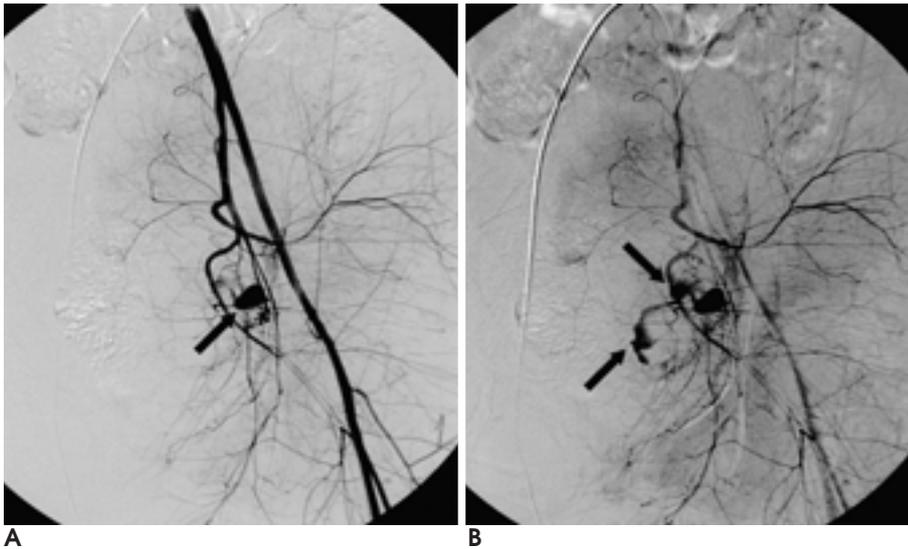
(Cook, Bloomington, U.S.A.)

(Johnson & Johnson, Skipton, UK)

2003 3 20 2003 5 30

Waltman loop technique (14)

25 (96%), 24 (4%), 24 (84%), 40 -  
 가 , 가  
 130 ( , 86 )  
 5 F (Target Therapeutics, Fremont, CA, U.S.A.) (n=1) (Figs. 1, 2). (n= 2),  
 가 (n=1), (n= 6)  
 가 (n=8), (n=3),

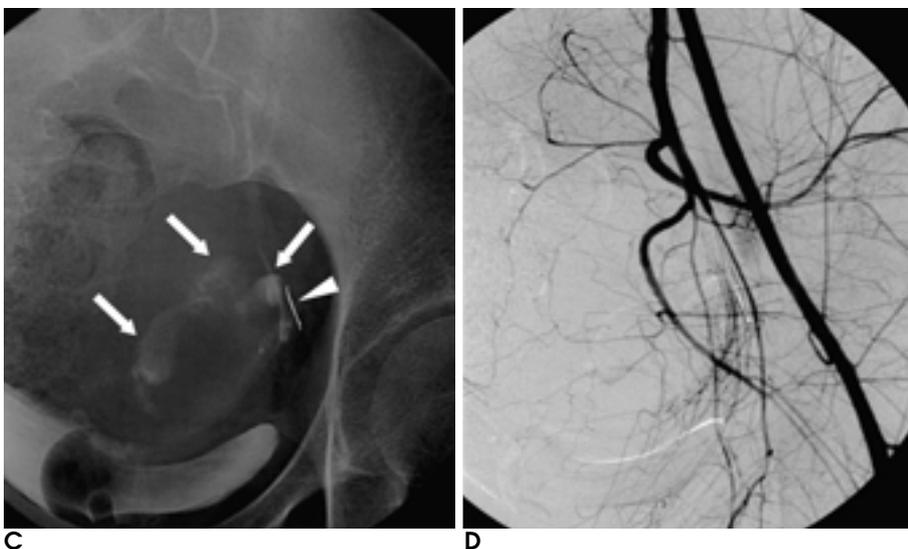


**Fig. 1.** A 36-year-old woman with vaginal bleeding after vaginal delivery due to uterine atony. The patient recovered completely following embolization of the bilateral uterine arteries.

**A, B.** Right antero-oblique view of early (**A**) and delayed (**B**) common iliac arteriograms show active bleeding (arrows) from the uterine artery.

**C.** Right antero-oblique plain image after embolization shows microcoils (arrowhead) and extravasated contrast medium (arrows).

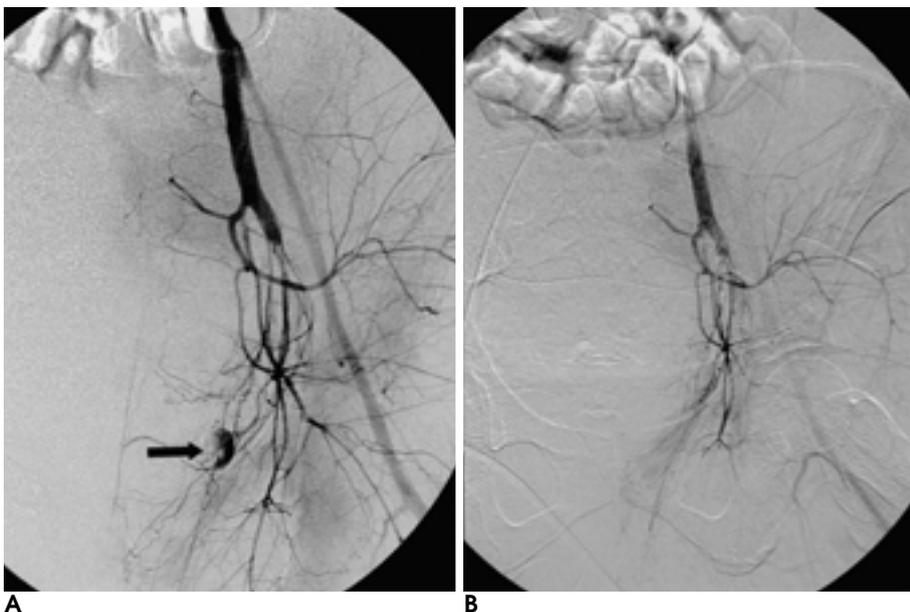
**D.** Right antero-oblique view of left common iliac arteriogram after embolization shows no residual bleeding focus.



(n=2) 2 11 가 4  
 1 1 11 6-36 ( , 17)  
 1 6 가  
 8 가 12 (92%) 가 2 12 , 13  
 2

(Fig. 3).

가 1 12  
 4-36 ( , 14)  
 (48%) 12 5% (15, 16),  
 0.1% (17).  
 (n=5), 가 가  
 (n=3) (n=2),  
 (n=1) (n=1)  
 5 , 1 (17).  
 (n=5) (n=1) 50% 가  
 (18), 가 (3, 4).  
 12  
 11 (92%) . 1  
 (19-21) ,



**Fig. 2.** A 40-year-old woman with vaginal bleeding after cesarean delivery. The patient recovered completely following embolization of bilateral anterior divisions of the internal iliac arteries. **A.** Anteroposterior view of left internal iliac arteriography shows active bleeding (arrow) from the uterine artery. **B.** Anteroposterior view of left internal iliac arteriography after embolization of the uterine artery and anterior division of the internal iliac artery shows no residual bleeding focus.

. 2001

Deux (22)

10  
3

86

24

가

33 - 100%

(2, 8, 10,

22 - 24),

(6, 10, 22,

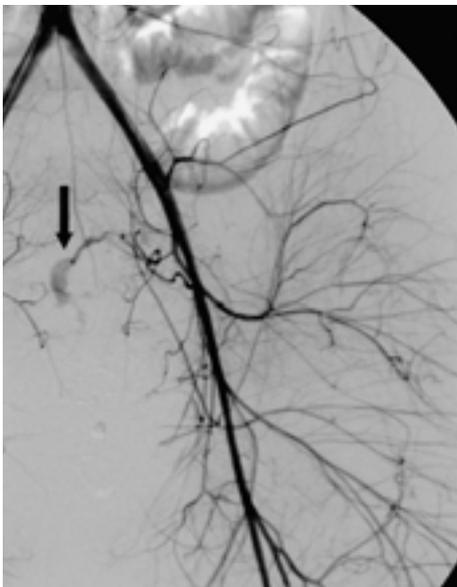
25).

52%

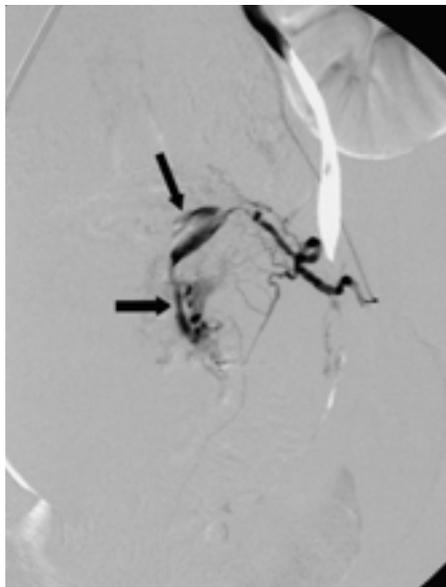
1

. Vedantham (1) 24  
가

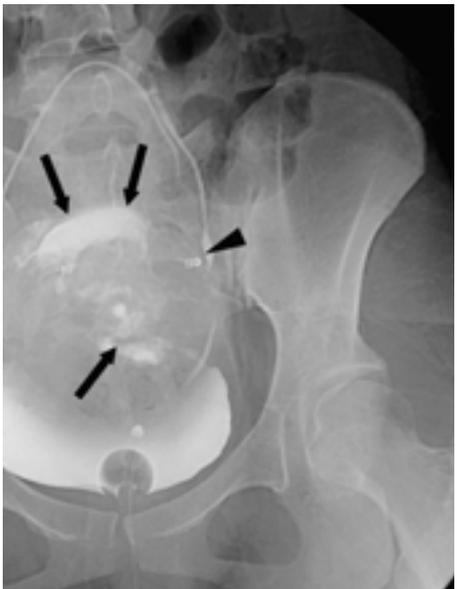
가



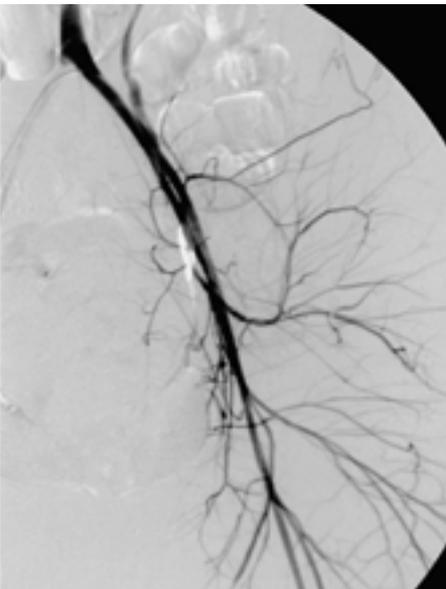
A



B



C



D

**Fig. 3.** A 26-year-old woman with vaginal bleeding after vaginal delivery due to uterine atony. The patient underwent hysterectomy two days after unilateral uterine artery embolization due to persistent vaginal bleeding.

**A.** Anteroposterior view of left common iliac arteriography shows active bleeding (arrow) at the top of the uterus.

**B.** Anteroposterior view of selective uterine arteriography using a microcatheter shows extravasation (arrows) of contrast medium.

**C.** Anteroposterior plain image after embolization shows microcoils (arrowhead) and extravasated contrast medium (arrows).

**D.** Anteroposterior view of left common iliac arteriography after embolization shows no residual bleeding focus.

(7),

가 가

가

83-

100%

(2, 5, 7, 8, 10, 11)

가 84%

(10, 22).

3 1

1

가

(5,

9, 10)

1

6

가

가

가

가

1

가

가

(5, 6,

Deux (22)

27, 28)

(10, 19, 22).

3

2

. Pelage (10), Hansch (11)

가

가

13

8

4 -

5F

(5, 19).

Deux (22)

20%

, Spies (26)

90%

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## Postpartum Bleeding: Efficacy of Endovascular Management<sup>1</sup>

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**Purpose:** To assess the effectiveness and safety of transcatheter arterial embolization for the treatment of massive postpartum bleeding.

**Materials and Methods:** Transcatheter arterial embolization was attempted in 25 patients with massive postpartum bleeding. After identification at bilateral internal iliac arteriography, the bleeding artery was embolized using gelfoam, polyvinyl alcohol particles or microcoils, and to prevent rebleeding through collateral pathways, the contralateral uterine artery or anterior division of the internal iliac artery was also embolized. Clinical success and complications were retrospectively assessed and documented.

**Results:** Active bleeding foci were detected in 13 patients (52%), and involved the unilateral ( $n=10$ ) or bilateral ( $n=2$ ) uterine artery and unilateral vaginal artery ( $n=1$ ). Twelve (92%) of the 13 patients recovered completely following embolization, but one underwent hysterectomy due to persistent bleeding. The focus of bleeding was not detected in 12 patients (48%), but 11 (92%) of these also recovered following embolization of the bilateral uterine or internal iliac arteries. One patient, however, died due to sepsis. Two of the 12 patients underwent hysterectomy due to rebleeding on the 12<sup>th</sup> and 13<sup>th</sup> day, respectively, after embolization.

**Conclusion:** Transcatheter arterial embolization is relatively safe and effective for the treatment massive postpartum bleeding.

**Index words :** Interventional procedures, embolization  
Pregnancy, complications  
Arteries, therapeutic blockade

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